

CLAIMS

What is claimed is:

1. A processing system for processing a food product comprising first and second food product loading stations, a conveyor traversing serially through said first and second loading stations, an accumulator in series between said first and second loading stations and having an inlet receiving said conveyor from said first loading station and having an outlet delivering said conveyor to said second loading station, said accumulator enabling differential conveyor velocity at its said inlet and said outlet to enable differential conveyor velocity through said first and second loading stations to permit intermittent loading and nonloading of food product at first and second conveyor velocities, respectively, said second conveyor velocity being greater than said first conveyor velocity.

2. The processing system according to claim 1 wherein:

said system has a first mode wherein food product is loaded on said conveyor at said first loading station while said conveyor is moving at said first conveyor velocity, to provide a first segment of said conveyor loaded with food product, and when said first segment reaches said second loading station, said conveyor is advanced through said second loading station at said second conveyor velocity without food product loading;

said system has a second mode wherein said conveyor is advanced through said first loading station at said second conveyor velocity without food product loading, to provide a second empty segment of said conveyor unloaded with food product and in series with said first segment, and when said second segment reaches said second loading station said conveyor is advanced through said second loading station at said first conveyor velocity with food product loading,

such that said conveyor as it leaves said first loading station has a plurality of intermittent segments comprising a first set of segments comprising said first segments loaded with food product and a second set of empty segments comprising

said second segments unloaded with food product, said second segments being spaced by respective said first segments therebetween, and

20 such that said conveyor as it leaves said second loading station has said second segments loaded with food product, in addition to said first segments loaded with food product.

3. The processing system according to claim 2 wherein said first and second loading stations simultaneously load food product on a single conveyor.

4. The processing system according to claim 2 wherein the production rate of said system is greater than that of a single loading station system.

5. A processing system for processing a food product comprising first and second loading stations, a conveyor traversing serially through said first and second loading stations, a first buffer having first and second accumulators, a second buffer having third and fourth accumulators, said first and second buffers
5 arranged such that said conveyor traverses serially through said third accumulator then through said first accumulator then through said first loading station then through said second accumulator then through said second loading station then through said fourth accumulator, each of said accumulators having an inlet and an outlet and enabling differential conveyor velocity at its respective said inlet and
10 outlet.

6. The processing system according to claim 5 comprising a processing station having an inlet receiving said conveyor from said outlet of said fourth accumulator and having an outlet returning said conveyor to said inlet of said third accumulator, and wherein said system has a loading-down-time accumulation mode
5 wherein at least one of said first and third accumulators takes-up said conveyor and at least one of said second and fourth accumulators pays-out said conveyor such that conveyor movement to said inlet of said processing station and from said outlet of said processing station continues, while conveyor movement at at least one of said loading stations is stopped.

7. The processing system according to claim 6 wherein in said loading-down-time accumulation mode, said first accumulator takes-up said conveyor, and said second accumulator pays-out said conveyor, and conveyor movement is stopped at said first loading station and at said outlet of said first accumulator and at said inlet of said second accumulator.

8. The processing system according to claim 6 wherein in said loading-down-time accumulation mode, said third accumulator takes-up said conveyor, said fourth accumulator pays-out said conveyor, and conveyor movement is stopped at at least said second loading station and at said outlet of said second accumulator and at said inlet of said fourth accumulator.

9. The processing system according to claim 8 wherein in said loading-down-time accumulation mode, conveyor movement is also stopped at said first loading station and at said outlet of said first accumulator and at said inlet of said second accumulator.

10. The processing system according to claim 5 wherein:
said first buffer has first and second buffer modes:

said first and second accumulators move in unison in said first buffer mode, with said first accumulator taking-up said conveyor, and said second accumulator paying-out said conveyor;

said first and second accumulators move in unison in said second buffer mode, with said first accumulator paying-out said conveyor, and said second accumulator taking-up said conveyor;

said second buffer has third and fourth buffer modes;

said third and fourth accumulators move in unison in said third buffer mode, with said third accumulator taking-up said conveyor, and said fourth accumulator paying-out said conveyor;

said third and fourth accumulators move in unison in said fourth buffer mode, with said third accumulator paying-out said conveyor, and said fourth accumulator taking-up said conveyor.

11. The processing system according to claim 5 wherein said first through fourth accumulators, including said second accumulator in series between said first and second loading stations, enable first and second conveyor velocities through each of said first and second loading stations, said first conveyor velocity providing a loading velocity during which said food product is loaded on said conveyor, said second conveyor velocity providing a bypass velocity during which said food product is not loaded on said conveyor, said bypass velocity being greater than said loading velocity.

12. The processing system according to claim 11 wherein:
said system has a first mode wherein food product is loaded on said conveyor at said first loading station while said conveyor is moving at said loading velocity, to provide a first segment of said conveyor loaded with food product, and when said first segment reaches said second loading station said conveyor is advanced through said second loading station at said bypass velocity without food product loading by said second loading station;

said system has a second mode wherein said conveyor is advanced through said first loading station at said bypass velocity without food product loading by said first loading station, to provide a second empty segment of said conveyor unloaded with food product and in series with said first segment, and when said second segment reaches said second loading station said conveyor is advanced through said second loading station at said loading velocity with food product loading by said second loading station;

such that said conveyor as it leaves said first loading station has a plurality of intermittent segments comprising a first set of segments comprising said first segments loaded with food product and a second set of empty segments comprising said second segments unloaded with food product, said second segments being spaced by respective said first segments therebetween; and

20 such that said conveyor as it leaves said second loading station has said second segments loaded with food product, in addition to said first segments loaded with food product.

13. The processing system according to claim 11 comprising a processing station having an inlet receiving said conveyor from said outlet of said fourth accumulator and having an outlet returning said conveyor to said inlet of said third accumulator, wherein said conveyor has a transport velocity at said outlet of said 5 fourth accumulator and at said inlet of said processing station and at said outlet of said processing station and at said inlet of said third accumulator, wherein said transport velocity remains constant during both of said loading and bypass velocities of said conveyor at said loading stations.

14. The processing system according to claim 5 comprising a processing station having an inlet receiving said conveyor from said outlet of said fourth accumulator and having an outlet returning said conveyor to said inlet of said third accumulator, and wherein said system has a loading-down-time accumulation mode 5 wherein at least one of said first and third accumulators takes-up said conveyor and at least one of said second and fourth accumulators pays-out said conveyor such that conveyor movement to said inlet of said processing station and from said outlet of said processing station continues, while conveyor movement at at least one of said loading stations is stopped, wherein said first through fourth accumulators, 10 including said second accumulator in series between said first and second loading stations, enable first and second conveyor velocities through each of said first and second loading stations, said first conveyor velocity providing a loading velocity during which said food product is loaded on said conveyor, said second conveyor velocity providing a bypass velocity during which said food product is not loaded 15 on said conveyor, said bypass velocity being greater than said loading velocity.

15. The processing system according to claim 14 wherein:
 said system has a first mode wherein food product is loaded on said conveyor at said first loading station while said conveyor is moving at said loading

velocity, to provide a first segment of said conveyor loaded with food product, and
5 when said first segment reaches said second loading station said conveyor is
advanced through said second loading station at said bypass velocity without food
product loading by said second loading station;

said system has a second mode wherein said conveyor is advanced through
said first loading station at said bypass velocity without food product loading by
10 said first loading station, to provide a second empty segment of said conveyor
unloaded with food product and in series with said first segment, and when said
second segment reaches said second loading station said conveyor is advanced
through said second loading station at said loading velocity with food product
loading by said second loading station;

15 such that said conveyor as it leaves said first loading station has a plurality of
intermittent segments comprising a first set of segments comprising said first
segments loaded with food product and a second set of empty segments comprising
said second segments unloaded with food product, said second segments being
spaced by respective said first segments therebetween; and

20 such that said conveyor as it leaves said second loading station has said
second segments loaded with food product, in addition to said first segments loaded
with food product;

said system has a third mode wherein conveyor movement at said first
loading station is stopped while conveyor movement continues to said inlet of said
25 processing station and from said outlet of said processing station; and

said system has a fourth mode wherein conveyor movement at said second
loading station is stopped while conveyor movement continues to said inlet of said
processing station and from said outlet of said processing station.

16. The processing system according to claim 15 wherein said conveyor
has a transport velocity at said outlet of said fourth accumulator and at said inlet of
said processing station and at said outlet of said processing station and at said inlet

of said third accumulator, wherein said transport velocity remains constant and the same during each of said four modes of said system.

17. The processing system according to claim 14 wherein said conveyor has a transport velocity at said outlet of said fourth accumulator and at said inlet of said processing station and at said outlet of processing station and at said inlet of said third accumulator, wherein said transport velocity remains constant and the same during both of said loading and bypass velocities of said conveyor at said loading stations and also remains constant and the same during said stopped movement of said conveyor at said loading stations.

18. The processing system according to claim 5 wherein said first through fourth accumulators, including said second accumulator in series between said first and second loading stations, enable first and second conveyor velocities through each of said first and second loading stations, said first conveyor velocity providing a loading velocity during which said food product is loaded on said conveyor, said second conveyor velocity providing a bypass velocity during which said food product is not loaded on said conveyor, and comprising a processing station having an inlet receiving said conveyor from said outlet of said fourth accumulator and having an outlet returning said conveyor to said inlet of said third accumulator, wherein said conveyor has a transport velocity at said outlet of said fourth accumulator and at said inlet of said processing station and at said outlet of said processing station and at said inlet of said third accumulator, wherein said transport velocity is less than said bypass velocity and greater than said loading velocity.

19. A processing system for processing an elongated strand of food product in a casing having tubular segments serially joined by pinched connection segments, comprising first and second strand loading stations adjacent respective first and second discharge stations of respective first and second strand producing machines, a conveyor comprising a chain traversing around first and second sprockets at respective said first and second strand loading stations, a plurality of J-shaped hooks mounted to said chain for receiving said strand of food product at a

respective said strand loading station, said chain traversing serially through said first and second strand loading stations, a first buffer having first and second
10 accumulators, a second buffer having third and fourth accumulators, said first and second buffers arranged such that said chain traverses serially through said third accumulator then through said first accumulator then around said first sprocket through said first strand loading station then through said second accumulator then around said second sprocket through said second strand loading station then
15 through said fourth accumulator, each of said accumulators having an inlet and an outlet and enabling differential chain velocity at its respective said inlet and outlet.

20. The processing system according to claim 19 wherein:

said first accumulator comprises a first set of fixed sprockets, and a second set of moveable sprockets moveable toward and away from said first set of fixed sprockets;

5 said second accumulator comprises a second set of fixed sprockets, and a second set of moveable sprockets moveable toward and away from said second set of fixed sprockets;

said third accumulator comprises a third set of fixed sprockets, and a third set of moveable sprockets moveable toward and away from said third set of fixed
10 sprockets;

said fourth accumulator comprises a fourth set of fixed sprockets, and a fourth set of moveable sprockets moveable toward and away from said fourth set of fixed sprockets;

said first and second sets of moveable sprockets are linked and move in
15 unison such that said first set of moveable sprockets move away from said first set of fixed sprockets when said second set of moveable sprockets move toward said second set of fixed sprockets, and said first set of moveable sprockets move toward said first set of fixed sprockets when said second set of moveable sprockets move away from said second set of fixed sprockets;

20 said third and fourth sets of moveable sprockets are linked and move in
unison such that said third set of moveable sprockets move away from said third set
of fixed sprockets when said fourth set of moveable sprockets move toward said
fourth set of fixed sprockets, and said third set of moveable sprockets move toward
said third set of fixed sprockets when said fourth set of moveable sprockets move
25 away from said fourth set of fixed sprockets;

 said first buffer has first and second buffer modes;

 said first and second accumulators move in unison in said first buffer mode,
with said first set of moveable sprockets moving away from said first set of fixed
sprockets and taking-up chain, and said second set of moveable sprockets moving
30 toward said second set of fixed sprockets and paying-out chain;

 said first and second accumulators move in unison in said second buffer
mode, with said first set of moveable sprockets moving toward said first set of fixed
sprockets and paying-out chain, and said second set of moveable sprockets moving
away from said second set of fixed sprockets and taking-up chain;

35 said second buffer has third and fourth buffer modes;

 said third and fourth accumulators move in unison in said third buffer mode,
with said third set of moveable sprockets moving away from said third set of fixed
sprockets and taking-up chain, and said fourth set of moveable sprockets moving
toward said fourth set of fixed sprockets and paying-out chain; and

40 said third and fourth accumulators move in unison in said fourth buffer
mode, with said third set of moveable sprockets moving toward said third set of
fixed sprockets and paying-out chain, and said fourth set of moveable sprockets
moving away from said fourth set of fixed sprockets and taking-up chain.

21. The processing system according to claim 19 comprising a processing
station having an inlet receiving said chain from said outlet of said fourth
accumulator and having an outlet returning said chain to said inlet of said third
accumulator, and wherein said system has a loading-down-time accumulation mode
5 wherein at least one of said first and third accumulators takes-up chain and at least

one of said second and fourth accumulators pays-out chain such that chain movement to said inlet of said processing station and from said outlet of said processing station continues, while chain movement at at least one of said loading stations is stopped.

22. The processing system according to claim 19 wherein said first through fourth accumulators, including said second accumulator in series between said first and second strand loading stations, enable first and second chain velocities through each of said first and second strand loading stations, said first chain
5 velocity providing a loading chain velocity during which said food product is loaded on said chain, said second chain velocity providing a bypass chain velocity during which said food product is not loaded on said chain, said bypass chain velocity being greater than said loading chain velocity.

23. The processing system according to claim 19 comprising a processing station having an inlet receiving said chain from said outlet of said fourth accumulator and having an outlet returning said chain to said inlet of said third accumulator, and wherein said system has a loading-down-time accumulation mode
5 wherein at least one of said first and third accumulators takes-up chain and at least one of said second and fourth accumulators pays-out chain such that chain movement to said inlet of said processing station and from said outlet of said processing station continues, while chain movement at at least one of said loading stations is stopped, wherein said first through fourth accumulators, including said
10 second accumulator in series between said first and second loading stations, enable first and second chain velocities through each of said first and second strand loading stations, said first chain velocity providing a loading chain velocity during which said food product is loaded on said chain, said second chain velocity providing a bypass chain velocity during which said food product is not loaded on
15 said chain, said bypass chain velocity being greater than said loading chain velocity, wherein:

said system has a first mode wherein food product is loaded on said chain at said first strand loading station while said chain is moving at said loading chain velocity, to provide a first segment of said chain loaded with food product, and
20 when said first segment reaches said second strand loading station said chain is advanced through said second strand loading station at said bypass chain velocity without food product loading by said second strand loading station;

said system has a second mode wherein said chain is advanced through said first strand loading station at said bypass chain velocity without food product
25 loading by said first strand loading station, to provide a second empty segment of said chain unloaded with food product and in series with said first segment, and when said second segment reaches said second strand loading station said chain is advanced through said second strand loading station at said loading chain velocity with food product loading by said second strand loading station;

30 such that said chain as it leaves said first strand loading station has a plurality of intermittent segments comprising a first set of segments comprising said first segments loaded with food product and a second set of empty segments comprising said second segments unloaded with food product, said second segments being spaced by respective said first segments therebetween; and

35 such that said chain as it leaves said second strand loading station has said second segments loaded with food product, in addition to said first segments loaded with food product.

24. The processing system according to claim 23 wherein said chain has a transport chain velocity at said outlet of said fourth accumulator and at said inlet of said processing station and at said outlet of said processing station and at said inlet of said third accumulator, wherein said transport chain velocity remains constant
5 and the same during each of said first and second modes of said system, including said loading and bypass chain velocities, and also remains constant and the same during said stopped chain movement at said loading stations.

25. The processing system according to claim 24 wherein said transport chain velocity is less than said bypass chain velocity and greater than said loading chain velocity.

26. A system for processing a food product comprising a loading station, a conveyor comprising a chain traversing in a horizontal plane around a sprocket at said loading station, said sprocket rotating about a vertical axis, a plurality of hooks pivotally mounted to said chain, each hook having a first orientation depending
5 downwardly from said chain, and a second upwardly pivoted orientation for loading food product thereon, said system having a loading mode at said loading station loading food product onto said hooks, said system having a bypass mode leaving said hooks empty at said loading station without loading food product thereon, said chain moving at a loading chain velocity during said loading mode, said chain
10 moving at a bypass chain velocity during said bypass mode, said bypass chain velocity being greater than said loading chain velocity, a retractable cam at said loading station and extendable and retractable between an extended loading position and a retracted bypass position, respectively, said cam in said extended loading position camming said hooks from said first orientation to said second orientation,
15 said cam in said retracted bypass position leaving said hooks in said first orientation to allow said hooks to move through said loading station without being cammed to said second orientation and permitting said hooks to move through said loading station in said first orientation at said bypass chain velocity.

27. The system according to claim 26 wherein said cam is horizontally movable along a track beneath said sprocket.

28. The system according to claim 26 wherein said food product is an elongated strand of food product in a casing having tubular segments serially joined by pinched connection segments, and comprising first and second said loading stations comprising first and second strand loading stations adjacent respective first
5 and second discharge stations of respective first and second strand producing machines, and comprising first and second said sprockets at respective said first and

second strand loading stations, said plurality of hooks comprising a plurality of J-shaped hooks pivotally mounted to said chain, a first buffer having first and second accumulators, a second buffer having third and fourth accumulators, said first and second buffers arranged such that said chain traverses serially through said third accumulator then through said first accumulator then around said first sprocket through said first strand loading station then through said second accumulator then around said second sprocket through said second strand loading station then through said fourth accumulator, each of said accumulators having an inlet and an outlet and enabling differential chain velocity at its respective said inlet and outlet, and comprising first and second said retractable cams at respective said first and second strand loading stations, said first through fourth accumulators, including said second accumulator in series between said first and second strand loading stations, enabling first and second chain velocities through each of said first and second strand loading stations, said first chain velocity providing said loading chain velocity during which said food product is loaded on said chain at said J-shaped hooks, said second chain velocity providing said bypass chain velocity during which said food product is not loaded on said J-shaped hooks, said bypass chain velocity being greater than said loading chain velocity, wherein:

said system has a first mode wherein food product is loaded on said J-shaped hooks at said first strand loading station while said chain is moving at said loading chain velocity and said first cam is in said extended loading position, to provide a first segment of said chain loaded with food product on said J-shaped hooks, and when said first segment reaches said second strand loading station said chain is advanced through said second strand loading station at said bypass chain velocity with said second cam in said retracted bypass position without food product loading by said second strand loading station;

said system has a second mode wherein said chain is advanced through said first strand loading station at said bypass chain velocity with said first cam in said retracted bypass position without food product loading by said first strand loading

station, to provide a second empty segment of said chain unloaded with food product and in series with said first segment, and when said second segment reaches said second strand loading station said chain is advanced through said second strand loading station at said loading chain velocity with said second cam in said extended loading position with food product loading by said second strand loading station on said J-shaped hooks;

such that said chain as it leaves said first strand loading station has a plurality of intermittent segments comprising a first set of segments comprising said first segments loaded with food product and a second set of empty segments comprising said second segments unloaded with food product, said second segments being spaced by respective said first segments therebetween; and

such that said chain as it leaves said second strand loading station has said second segments loaded with food product, in addition to said first segments loaded with food product.

29. A method for processing a food product comprising providing first and second food product loading stations, providing a conveyor and traversing said conveyor serially through said first and second loading stations, providing an accumulator in series between said first and second loading stations and having an inlet receiving said conveyor from said first loading station and having an outlet delivering said conveyor to said second loading station, said accumulator enabling differential conveyor velocity at its said inlet and said outlet, intermittently loading and nonloading food product at at least one of said loading stations at first and second conveyor velocities, respectively, said second conveyor velocity being greater than said first conveyor velocity.

30. The method according to claim 29 comprising:

providing a first system mode, and during said first system mode, loading said food product on said conveyor at said first loading station while moving said conveyor at said first conveyor velocity, to provide a first segment of said conveyor loaded with food product, and when said first segment reaches said second loading

station, advancing said conveyor through said second loading station at said second conveyor velocity without food product loading;

providing said system with a second mode, and during said second system mode, advancing said conveyor through said first loading station at said second
10 conveyor velocity without food product loading, to provide a second empty segment of said conveyor unloaded with food product and in series with said first segment, and when said second segment reaches said second loading station, advancing said conveyor through said second loading station at said first conveyor velocity with food product loading,

15 such that said conveyor as it leaves said first loading station has a plurality of intermittent segments comprising a first set of segments comprising said first segments loaded with food product and a second set of empty segments comprising said second segments unloaded with food product, said second segments being spaced by respective said first segments therebetween, and

20 such that said conveyor as it leaves said second loading station has said second segments loaded with food product, in addition to said first segments loaded with food product.

31. The method according to claim 30 comprising simultaneously loading food product on a single said conveyor at said first and second loading stations.

32. The method according to claim 30 comprising processing said food product at a production rate less than twice that of a single loading station system, due to loading time lost while advancing said conveyor at said second conveyor velocity, but at least 1.5 times that of a single loading station system.

33. A method for processing a food product comprising providing first and second loading stations, providing a conveyor and traversing said conveyor serially through said first and second loading stations, providing a first buffer having first and second accumulators, providing a second buffer having third and fourth accumulators,
5 traversing said conveyor serially through said third accumulator then through said first accumulator then through said first loading station then through said second

accumulator then through said second loading station then through said fourth accumulator, each of said accumulators having an inlet and an outlet and enabling differential conveyor velocity at its respective said inlet and outlet.

34. The method according to claim 33 comprising providing a processing station having an inlet receiving said conveyor from said outlet of said fourth accumulator and having an outlet returning said conveyor to said inlet of said third accumulator, providing a system loading-down-time accumulation mode, and during
5 said loading-down-time accumulation mode, taking-up said conveyor with at least one of said first and third accumulators and paying-out said conveyor with at least one of said second and fourth accumulators and continuing conveyor movement to said inlet of said processing station and from said outlet of said processing station while stopping conveyor movement at at least one of said loading stations.

35. The method according to claim 34 comprising, during said loading-down-time accumulation mode, taking-up said conveyor with said first accumulator and paying-out said conveyor with said second accumulator and stopping movement of said conveyor at said first loading station and at said outlet of said first
5 accumulator and at said inlet of said second accumulator.

36. The method according to claim 34 comprising, during said loading-down-time accumulation mode, taking-up said conveyor with said third accumulator and paying-out said conveyor with said fourth accumulator and stopping conveyor movement at at least said second loading station and said outlet of said second
5 accumulator and at said inlet of said fourth accumulator.

37. The method according to claim 36 comprising, during said loading-down-time accumulation mode, also stopping said conveyor at said first loading station and at said outlet of said first accumulator and at said inlet of said second accumulator.

38. The method according to claim 33 comprising:
providing said first buffer with first and second buffer modes;
moving said first and second accumulators in unison in said first buffer mode

and taking-up said conveyor with said first accumulator and paying-out said conveyor
5 with said second accumulator;

moving said first and second accumulators in unison in said second buffer
mode and paying-out said conveyor with said first accumulator and taking-up said
conveyor with said second accumulator;

providing said second buffer with third and fourth buffer modes;

10 moving said third and fourth accumulators in unison in said third buffer mode
and taking-up said conveyor with said third accumulator and paying-out said
conveyor with said fourth accumulator;

moving said third and fourth accumulators in unison in said fourth buffer
mode and paying-out said conveyor with said third accumulator and taking-up said
15 conveyor with said fourth accumulator.

39. The method according to claim 33 comprising using said first through
fourth accumulators, including said second accumulator in series between said first
and second loading stations, to provide first and second conveyor velocities through
each of said first and second loading stations, said first conveyor velocity providing a
5 loading velocity during which said food product is loaded on said conveyor, said
second conveyor velocity providing a bypass velocity during which said food
product is not loaded on said conveyor, said bypass velocity being greater than said
loading velocity.

40. The method according to claim 39 comprising:

providing said system with a first mode, and during said first mode, loading
said food product on said conveyor at said first loading station while moving said
conveyor at said loading velocity, to provide a first segment of said conveyor loaded
5 with food product, and when said first segment reaches said second loading station,
advancing said conveyor through said second loading station at said bypass velocity
without food product loading by said second loading station;

providing said system with a second mode, and during said second mode,
advancing said conveyor through said first loading station at said bypass velocity

10 without food product loading by said first loading station, to provide a second empty
segment of said conveyor unloaded with food product and in series with said first
segment, and when said second segment reaches said second loading station,
advancing said conveyor through said second loading station at said loading velocity
with food product loading by said second loading station;

15 such that said conveyor as it leaves said first loading station has a plurality of
intermittent segments comprising a first set of segments comprising said first
segments loaded with food product and a second set of empty segments comprising
said second segments unloaded with food product, said second segments being
spaced by respective said first segments therebetween; and

20 such that said conveyor as it leaves said second loading station has said second
segments loaded with food product, in addition to said first segments loaded with
food product.

41. The method according to claim 39 comprising providing a processing
station having an inlet receiving said conveyor from said outlet of said fourth
accumulator and having an outlet returning said conveyor to said inlet of said third
accumulator, and traversing said conveyor at a transport velocity at said outlet of said
5 fourth accumulator and at said inlet of said processing station and at said outlet of
said processing station and at said inlet of said third accumulator, wherein said
transport velocity remains constant and the same for both of said loading and bypass
velocities of said conveyor at said loading stations.

42. The method according to claim 33 comprising providing a processing
10 station having an inlet receiving said conveyor from said outlet of said fourth
accumulator and having an outlet returning said conveyor to said inlet of said third
accumulator, providing a system loading-down-time accumulation mode, and
during said loading-down-time accumulation mode, taking-up said conveyor with at
least one of said first and third accumulators and paying-out said conveyor with at
15 least one of said second and fourth accumulators and continuing conveyor
movement to said inlet of said processing station and from said outlet of said

processing station while stopping conveyor movement at at least one of said loading stations and comprising using said first through fourth accumulators, including said second accumulator in series between said first and second loading stations, to
20 provide first and second conveyor velocities through each of said first and second loading stations, said first conveyor velocity providing a loading velocity during which said food product is loaded on said conveyor, said second conveyor velocity providing a bypass velocity during which said food product is not loaded on said conveyor, said bypass velocity being greater than said loading velocity.

43. The method according to claim 42 comprising:

providing said system with a first mode, and during said first mode, loading said food product on said conveyor at said first loading station while moving said conveyor at said loading velocity, to provide a first segment of said conveyor
5 loaded with food product, and when said first segment reaches said second loading station, advancing said conveyor through said second loading station at said bypass velocity without food product loading by said second loading station;

providing said system with a second mode, and during said second mode, advancing said conveyor through said first loading station at said bypass velocity
10 without food product loading by said first loading station, to provide a second empty segment of said conveyor unloaded with food product and in series with said first segment, and when said second segment reaches said second loading station, advancing said conveyor through said second loading station at said loading velocity with food product loading by said second loading station;

15 such that said conveyor as it leaves said first loading station has a plurality of intermittent segments comprising a first set of segments comprising said first segments loaded with food product, and a second set of empty segments comprising said second segments unloaded with food product, said second segments being spaced by respective said first segments therebetween; and

20 such that said conveyor as it leaves said second loading station has said second segments loaded with food product, in addition to said first segments loaded with food product;

 providing said system with a third mode, and during said third mode, stopping conveyor movement at said first loading station while continuing conveyor
25 movement to said inlet of said processing station and from said outlet of said processing station; and

 providing said system with a fourth mode, and during said fourth mode, stopping conveyor movement at said second loading station while continuing conveyor movement to said inlet of said processing station and from said outlet of
30 said processing station.

44. The method according to claim 43 comprising traversing said conveyor at a transport velocity at said outlet of said fourth accumulator and at said inlet of said processing station and at said outlet of said processing station and at said inlet of said third accumulator, wherein said transport velocity remains
5 constant and the same during each of said four modes of said system.

45. The method according to claim 42 comprising traversing said conveyor at a transport velocity at said outlet of said fourth accumulator and at said inlet of said processing station and at said outlet of said processing station and at said inlet of said third accumulator, wherein said transport velocity remains
5 constant and the same during both of said loading and bypass velocities of said conveyor at said loading stations and also remains constant and the same during said stopped movement of said conveyor at said loading stations.

46. The method according to claim 33 comprising using said first through fourth accumulators, including said second accumulator in series between said first and second loading stations, to provide first and second conveyor velocities through each of said first and second loading stations, said first conveyor velocity providing
5 a loading velocity during which said food product is loaded on said conveyor, said second conveyor velocity providing a bypass velocity during which said food

product is not loaded on said conveyor, providing a processing station having an inlet receiving said conveyor from said outlet of said fourth accumulator and having an outlet returning said conveyor to said inlet of said third accumulator, traversing
10 said conveyor at a transport velocity at said outlet of said fourth accumulator and at said inlet of said processing station and at said outlet of said processing station and at said inlet of said third accumulator, wherein said transport velocity is less than said bypass velocity and greater than said loading velocity.

47. A method for processing a food product comprising providing a loading station, providing a conveyor comprising a chain, traversing said chain in a horizontal plane around a sprocket at said loading station, said sprocket rotating about a vertical axis, providing a plurality of hooks pivotally mounted to said chain,
5 each hook having a first orientation depending downwardly from said chain, and a second upwardly pivoted orientation for loading food product thereon, providing said system with a loading mode, and during said loading mode, loading food product at said loading station onto said hooks, providing said system with a bypass mode, and during said bypass mode, leaving said hooks empty at said loading
10 station without loading food product thereon, moving said chain at a loading chain velocity during said loading mode, moving said chain at a bypass chain velocity during said bypass mode, said bypass chain velocity being greater than said loading chain velocity, providing a retractable cam at said loading station which is extendable and retractable between an extended loading position and a retracted
15 bypass position, respectively, and comprising, during said loading mode, extending said cam to said extended loading position to cam said hooks from said first orientation to said second orientation, and during said bypass mode, retracting said cam to said retracted bypass position leaving said hooks in said first orientation to allow said hooks to move through said loading station without being cammed to
20 said second orientation and moving said hooks through said loading station in said first orientation at said bypass chain velocity.

48. The method according to claim 47 comprising moving said cam horizontally along a track beneath said sprocket.

49. The method according to claim 47 wherein said food product is an elongated strand of food product in a casing having tubular segments serially joined by pinched connection segments, and comprising providing first and second said loading stations comprising first and second strand loading stations adjacent
5 respective first and second discharge exits of respective first and second strand producing machines, providing first and second said sprockets at respective said first and second strand loading stations, providing said plurality of hooks as a plurality of J-shaped hooks pivotally mounted to said chain, providing a first buffer having first and second accumulators, providing a second buffer having third and
10 fourth accumulators, traversing said chain serially through said third accumulator then through said first accumulator then around said first sprocket through said first strand loading station then through said second accumulator then around said second sprocket through said second strand loading station then through said fourth accumulator, each of said accumulators having an inlet and an outlet and enabling
15 differential conveyor velocity at its respective said inlet and outlet, providing first and second said retractable cams at respective said first and second strand loading stations, using said first through fourth accumulators, including said second accumulator in series between said first and second strand loading stations, to provide first and second chain velocities through each of said first and second
20 strand loading stations, said first chain velocity providing said loading chain velocity during which said food product is loaded on said chain at said J-shaped hooks, said second chain velocity providing said bypass chain velocity during which said food product is not loaded on said J-shaped hooks, and comprising:
providing said system with a first mode, and during said first mode, loading
25 said food product on said J-shaped hooks at said first strand loading station while moving said chain at loading chain velocity and extending said first cam to said extended loading position, to provide a first segment of said chain loaded with food

product on said J-shaped hooks, and when said first segment reaches said second strand loading station, advancing said chain through said second strand loading station at said bypass chain velocity and retracting said second cam to said retracted bypass position without food product loading by said second strand loading station;

providing said system with a second mode, and during said second mode, advancing said chain to said first strand loading station at said bypass chain velocity and retracting said first cam to said retracted bypass position without food product

loading by said first strand loading station, to provide a second empty segment of said chain unloaded with food product and in series with said first segment, and when said second segment reaches said second strand loading station, advancing said second chain through said second strand loading station at said loading chain velocity and extending said second cam to said extended loading position with food

product loading by said second strand loading station on said J-shaped hooks;

such that said chain as it leaves said first strand loading station has a plurality of intermittent segments comprising a first set of segments comprising said first segments loaded with food product, and a second set of empty segments comprising said second segments unloaded with food product, said second segments being spaced by respective said first segments therebetween; and

such that said chain as it leaves said second strand loading station has said second segments loaded with food product, in addition to said first segments loaded with food product.